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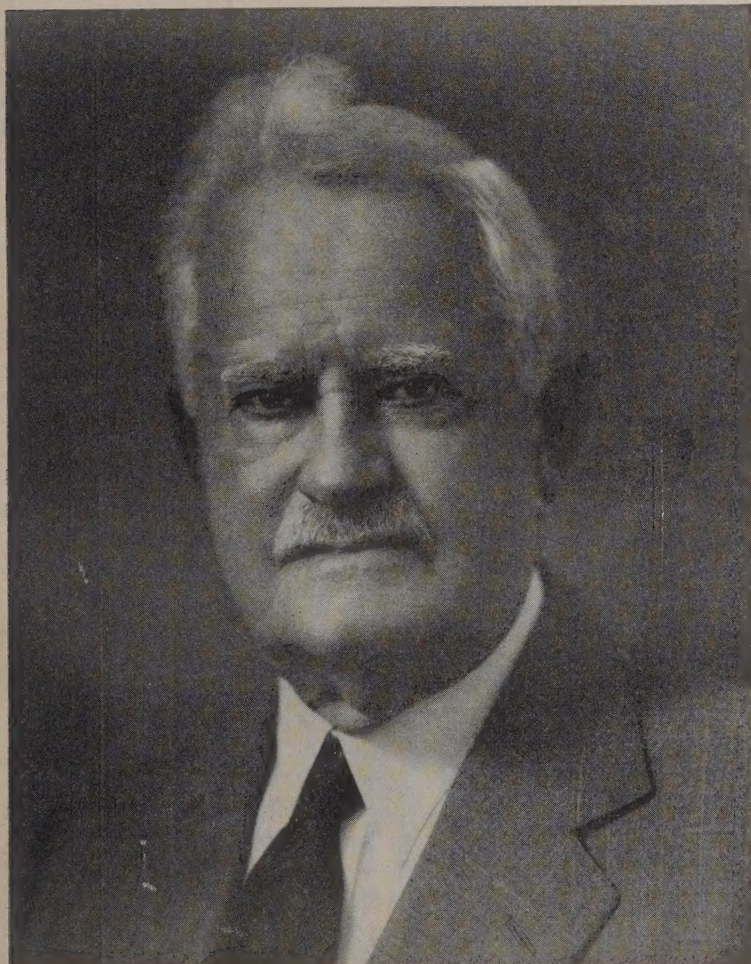
The Florida Entomologist

Official Organ of the Florida Entomological Society

VOL. XXVII

APRIL, 1944

No. 1



DR. PETER HENRY ROLFS

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DR. PETER HENRY ROLFS

Again the heavy hand of the grim reaper has taken one of the oldest and most renowned members of our Society, in the person of Professor P. H. Rolfs who died at Gainesville, February 23rd. Dr. Rolfs was born at Le Claire, Iowa, on April 17, 1865. He spent his early years on his father's farm; attended the Iowa State College of Agriculture, from which he received his B.Sc. in 1889 and his M.S. in 1891. He received his D.S. from the University of Florida in 1920. With one brief intermission, Dr. Rolfs's professional activities were, until 1921, all in Florida. He was Professor of Natural Science at the Florida Agricultural Experiment Station and the Agricultural College, then located in Lake City, from 1891 to 1899. He was botanist and bacteriologist at Clemson College, South Carolina, from 1899 to 1901. He returned to Florida in 1901 as Plant Pathologist in charge of the USDA Sub-tropical Laboratory at Miami. In 1905, he came to the University as Director of the Experiment Station, a position which he held until 1921. In 1913 there was added to his duties the position of Director of Agricultural Extension Division and in 1915 those of Dean of the Agricultural College as well. In 1921, at the request of the U. S. Department of State, he went to Brazil to found the Escola Superior de Agricultura e Veterinaria of the State of Minas Gerais. This agricultural college, Dr. Rolfs established in Vicosa and remained at its head until 1928 when he became Consultor de Agricultura Estado de Minas Gerais, a position which he held until his retirement in 1933. After thirty years experience in the development of Florida agriculture and agricultural education, Dr. Rolfs was admirably adapted to take up his duties in Brazil. He acquired sufficient Portuguese to read it easily and gave some addresses in that language. He was elected to life membership in the AAAS in 1938. He was also life members of the Botanical Society of America and the Florida Horticultural Society.

Dr. Rolfs' interests were very wide. No one was better acquainted with Florida Horticulture than he. His interest in flowering plants is shown by the fact that two species of flowering plants were named after him—an oak, *Quercus Rolfsii* Small, and a milkweed, *Asclepias Rolfsii* Britton; in entomology by the whitefly, *Aleurodes rolfsii* Quaint; and in mycology by two parasitic fungi, *Lembrosia Rolfsii* and *Sclerotium Rolfsii* Saccardo, the latter a very wide-spread and destructive parasite on seed-

ling plants. He is the author of two early extensive works on horticulture; one on "Vegetable Growing in the South for Northern Markets" (1896) and "Sub-tropical Vegetable Garden" in 1916. He was the author of fifteen bulletins of the Experiment Station—two on the San Jose Scale and Bulletin 94, "Fungi Destructive to Scale Insects and Whiteflies". He was a pioneer in this field. He was the author of twenty Press Bulletins—two on entomological subjects and eight circulars of the USDA. Forty-three of his papers have been published in the Proceedings of the Florida State Horticultural Society. He wrote five important bulletins for the USDA; No. 140, on "Pineapple Growing"; No. 238, on "Citrus Growing in the Gulf States"; No. 538, on "Sites, Soils and Varieties of Citrus Groves in the Gulf States"; No. 539, "Propagation of Citrus Trees in the Gulf States"; No. 542, on "Culture, Fertilization and Frost Protection of Citrus Groves in the Gulf States". For the Bureau of Plant Industry of the USDA, he wrote Bulletin No. 52, on "Withertip and other Diseases of Citrus Trees and Fruits" and Bulletin 61, on the "Avocado in Florida". He published in the Proceedings of the Pomological Society in 1911, an extensive article on the "Mango in Florida"; in the Botanical Gazette of 1892, one of the "Seed-coats of Malvaceae"; in the Proceedings of the Society for promotion of Agricultural Science he wrote "Notes on Citrus Investigation for Florida"; in 1899, in the Proceedings of St. Louis Academy of Science, an article on the "Lichens of Florida". In Brazil, with his daughter, Clarissa, as co-author, he wrote one hundred and fourteen bulletins and articles on Horticulture, all but two are in Portuguese. One of the largest was on the "Muda de Citrus", in 1931. Dr. Rolfs possessed a talent almost amounting to genius for selecting plants which might be successful in any given region. The Avocado industry of central Brazil is based on his importing into that country, better varieties of Guatemalan avocados, which had been developed in the States.

The first tung oil trees planted experimentally at the Florida Experiment Station were confided to his care. With his scientific "coddling" he was instrumental in getting this, now, important Florida industry off to a flying start.

He was probably the foremost world authority on the horticulture of the Flacourtiaceae, including the species from which the cures of leprosy are made. If returning United States soldiers establish new foci of this disease, as is feared in some

quarters, Dr. Rolfs' pioneering work in this field may prove of great value in this country, as it has already done in Brazil. He was largely instrumental in building up the commercial citrus plantings in Brazil.

Dr. Rolfs was an avid traveler, always studying agriculture and agricultural education. He had been in all but two of the American States, and in all but three of the twenty Brazilian States. He traveled extensively in other South American countries and in Mexico.

Dr. Rolfs was extremely fortunate in his selection of a life partner, Miss Effie Stone, whom he married in 1892. Mrs. Rolfs preceded him in death in 1929. They left two daughters, Miss Clarissa Rolfs and Mrs. Effie Hargrave and four grand-children. Mrs. Rolfs and daughters were worthy helpmates, always cheerful, ready for any adventure, always collaborating fully within their own spheres. Dr. and Mrs. Rolfs and daughter made many devoted friends in Brazil, where they lived in the interior and so became thoroughly acquainted with all Brazilians.

Dr. Rolfs always showed an intense and friendly interest in the members of his force and was constantly in active and close touch with their activities through both group meetings and private conferences. He built up the Experiment Station, a very small institution when he took charge.

The Students of the Minas Agricultural College almost idolized this ideal couple of Americans. At the initiative of the graduating class of 1942, a bronze bust of Dr. Rolfs was unveiled, on March 1st of 1943, in front of the entrance to the main building of the Agricultural College. Dr. Rolfs found great amusement in the fact that every freshman was required to salute this bust every time he passed near it. Dr. Rolfs, Mrs. Rolfs, and daughter Clarissa did much to cement the friendship between their native country and Brazil. The opportunity to do this had much to do with his decision to accept the call to Brazil.

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***Crambus haytiellus* (Zincken) AS A PEST
OF CARPET GRASS**

By DR. W. D. WYLIE

Entomologist, Research Department
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Crambus haytiellus (Zincken) has been reported from several locations in Florida, as well as from Cuba, Jamaica, Puerto Rico, Santo Domingo, Panama, and Mexico. It has been reported at least once as a pest of economic importance. Moznette states that this species caused considerable damage to lawns of Bermuda and Japanese grass at Miami and Coconut Grove, Florida, in the spring and summer of 1921. The observations reported herein, although limited in scope, indicate that this insect may assume a role of considerable importance as a pest of Carpet grass pastures, at least in certain areas of Florida.

According to Dr. Carl Heinrich,¹ the species was first described by Zincken under the name of *C. haytiellus* in 1821. The same insect was described later by Walker (1866) under the name *C. profanellus*. Thus the latter name becomes a synonym of *C. haytiellus*.

Some laboratory work was conducted to supplement the observations made in the field. While both were carried on con-

¹ Senior entomologist, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, Washington, D. C.

currently, for the sake of convenience, the laboratory results are presented first.

Field-collected moths were obtained, both by sweeping with a net and in a light trap, in order to get some information on oviposition. The eggs are deposited singly and are not attached in any way to the surface upon which they are placed. Moths were placed in an enclosure with access to small pots of Bermuda, St. Augustine, and Carpet grass. Eggs were deposited on the surface of the soil or on the litter composed of dead leaves of the grass and cow manure. A few more eggs were deposited in the pot containing Carpet than in the one containing St. Augustine grass. Very few eggs were found in the pot containing Bermuda grass.

In another test, moths were inclosed in a cage with a floor composed of soil similar to that in the pasture discussed later. There were two small patches of Carpet grass in each half of the cage with one being several inches higher in elevation than the other. One half of the cage was quite wet while the other was relatively dry. Practically all of the eggs were found in the wet half of the cage. There was no difference in the numbers of eggs found at the higher and lower elevations. All of the eggs were found on the surface of the bare soil, but most of them were in close proximity to the patches of grass.

Individual females were placed in test tubes to get oviposition records. Approximately half of these deposited some eggs. The total number of eggs deposited by individual moths ranged from three to fifty-one, with an average of thirty for those that oviposited at all. These moths were not fed.

The eggs — which are creamy white when first oviposited — were placed in petri dishes on moist paper toweling to hatch. At prevailing temperatures during October and November, the duration of the egg stage was from five to seven days.

Newly hatched larvae were placed in two-ounce salve tins containing foliage of Bermuda, Carpet and St. Augustine grass. A large majority of these larvae chose the St. Augustine foliage in preference to the other two grasses. Of the remainder, approximately equal numbers were found to be feeding on Carpet and Bermuda grass. A number of field-collected larvae representing principally the last three instars were placed in individual two-ounce salve tins with a choice of the same three grasses. In every instance the larvae fed on the Bermuda in preference to the other two grasses. Although this procedure

was repeated later with another group of larvae, the results were the same.

Other newly hatched larvae were divided into three batches and one series started on each of the three grasses mentioned above. High mortality was encountered, apparently due to inability to keep the moisture of the tins at the proper level and to disturbance of the webbing of the larvae in changing to fresh food. None of the lot on St. Augustine survived longer than three weeks. Equal numbers were reared to maturity on Bermuda and Carpet grass. The duration of the larval stage was from 35-40 days in these rearings.

The pupal stage, which is passed in a strong silken cocoon, was found to average approximately two weeks in duration.

All of the field observations recorded herein were made in an 80-acre pasture of Carpet grass located about two miles northwest of Clewiston, Florida. The grass was growing on a sandy soil which contained 1.5-2 per cent organic matter. The grass was planted in December, 1941. From 80 to 100 steers were grazed on this pasture from the summer of 1942 till the end of July, 1943. All the cattle were then removed to allow the grass to set seed. The seed was harvested the middle of September and the cattle returned to the pasture. They were removed a couple of weeks later when the spots of dead grass were noted. The writer first visited this pasture on October 6, 1943, to determine, if possible, the cause of the spots of dead grass. At that time, approximately one third of the stand of grass had been killed. Observations were made at weekly intervals until the end of November.

The surface of the pasture was not perfectly level: there were slight knolls at frequent intervals which were several inches higher in elevation than the surrounding area. At the time of the initial examination of the pasture, there were spots scattered fairly uniformly over the entire area in which all the grass was entirely dead. These dead spots were roughly circular in outline, varying from two to several feet in diameter. Almost invariably, the dead areas were to be found at the higher elevations. At first glance there appeared to be a very distinct line of demarkation between affected and unaffected areas. Later it was found that where the larvae were active there was actually a transition zone between the dead and healthy grass. The grass in this area had a small amount of green leaf surface still showing. The leaf blades were usually eaten down to within a

fraction of an inch of the leaf sheaths and the webbing of the larvae was very evident. This transition zone was rather constant in width, usually about one foot wide. A large majority of all the larvae present could be found in this area.

Since the dead areas upon first examination were very similar in appearance to what might be expected from an infestation of white grubs, the first step taken was to determine whether the dead sod could be pulled up freely. It was soon apparent that the roots of the dead grass were still largely intact. It was also apparent upon close examination that a great deal of defoliation had taken place, although from a distance this was not evident. Carpet grass grows in such a manner that a healthy sod appears perfectly green, but the removal of most of the green leaves uncovers enough dead ones to make it appear that the grass has died with all its leaves intact. Later, diggings were made in healthy and dead grass to determine whether or not root-infesting insects were present. A few wireworms were found, but in such small numbers that they could not possibly have been in any degree responsible for the damage.

The margins of the dead spots were then examined and larvae of all stages except those of the first instar were easily found. Larvae of all sizes were found in abundance, there being no evidence of any definite broods. Later examinations tended to substantiate this conclusion. Adults and pupae were found in abundance throughout the entire period that the pasture was under observation. Eggs were not found at any time in the field.

Following the initial observations, the injury to the grass progressed rather rapidly, both by increase and coalescence of the existing dead spots and the appearance of new ones. By the end of October it was estimated that four-fifths of the total grass area was dead. The advent of cooler weather seemed to slow down the rate at which the grass was being killed, but by the end of November not more than one tenth of the original grass still remained alive. On the latter date there was still a rather distinct break between the dead and living grass except for the intermediate zone, as previously noted. It was not uncommon at this time to see a spot of apparently noninfested grass possibly only a foot in diameter surrounded entirely by dead grass.

A few spots of Bermuda grass were present in one corner of the pasture. The carpet grass surrounding these spots was entirely killed, while very little evidence of feeding was observed

on the Bermuda. There were also some small spots of carpet in an adjoining pasture of Bermuda. In many instances the feeding of the webworms had entirely killed the carpet and left the surrounding Bermuda intact. Since the field-collected larvae in the laboratory showed a strong preference for the Bermuda, this result was surprising. The apparent reason lies in the difference in the growth habits of the two grasses. The carpet grass by making a low, dense mat of green foliage in close proximity to the soil surface, offered an ideal hiding place for the larvae. The Bermuda on the other hand, with its more upright habit of growth, had most of its green foliage a little distance off the surface of the soil. Also in the laboratory the adults showed a preference for the areas where carpet grass was growing as a site for oviposition. It appeared that the larvae travelled only very short distances from the original point of hatching.

It seemed that the larval stage, at least, of *C. haytiellus* was relatively free of natural enemies. A small spider was found to be fairly abundant in the infested sod, but was not observed to prey on the webworms. Ants also were commonly seen in the infested area and were seen occasionally carrying a dead webworm back to their nest. Early in October a few cocoons of an Ichneumonid wasp were collected along with the webworms. Adults reared from these cocoons were determined² as "*Limneria pattoni* Ashmead. A hymenopterous larva issued from a field-collected larva of *C. haytiellus*, but died without pupating. It was presumably *L. pattoni*. Subsequent collections of larvae failed to reveal the presence of any more cocoons of *L. pattoni*. Thus even though it may have been parasitic on *C. haytiellus* it was of little importance.

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² Determination by Dr. H. K. Townes, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, Washington, D. C.

LIFE HISTORY STUDIES OF THE SUGARCANE MOTH BORER,

Diatraea saccharalis Linn.

DOYLE J. TAYLOR

E. H. N.

INTRODUCTION

This report covers in summary, an investigation conducted upon the sugar cane borer moth, *Diatraea saccharalis* Linn., extending from March through December 1941. It is of significance in that it is the only one of its kind ever attempted to date in Florida. It has attempted to determine some of the facts concerning the life cycle and habits of the sugar cane borer as it occurs in the Everglades section of Florida. Although studies of this nature have been carried on in other areas, the data obtained do not apply to the Florida conditions in many instances.

A very important study of this kind has been in progress at the United States Sugar Cane Experiment Station at Houma, Louisiana, for the past several years. Work there has been developed to a point of considerable efficiency and accuracy under Ingram, Bynum, Holloway, Mathis and others. Several publications have been issued as the result of this and closely associated studies, from the Houma station. The present work has been partially based upon some of these investigations.

The writer deeply appreciates the assistance of Dr. John W. Wilson under whose council and direction this work was performed.

METHODS

D. saccharalis eggs were obtained for daily incubation records in the laboratory, by collecting pupae and using the eggs laid by the emerging adults. The pupae were obtained usually from collections made while determining the percentage of parasitization of individual fields of sugar cane. The pupae were kept in a glass petri dish until the adults had emerged.

Pint ice cream cartons were used for laying quarters for the adult moths. Waxed paper, which had been crumpled, was used favorably as a surface for the eggs to be laid upon. The waxed paper somewhat resembles in texture the natural laying habitat, the cane leaf.

Each morning the paper, including the eggs which were laid thereon the previous night, was removed from the carton and replaced by fresh paper. These eggs were examined daily, each

day's batch having been separated into individual tin pill boxes. The length of the incubation period was observed and recorded.

In the larval studies the newly hatched larvae were placed in the tin pill boxes with two pieces of sugar cane leaf. Five larvae were placed in each box, until immediately following the first molt in order to save much time and exacting labor.

Following the first molt, the larvae were transferred to individual glass tubes. These tubes were one inch in diameter, four inches long, open on both ends to facilitate cleaning, and stoppered with metal caps. Cane leaf was still used as food. The lower part with the larger midrib was preferred in this stage. These were replaced with fresh leaves often enough to prevent drying out or molding. The larvae would seldom if ever eat the entire leaf before it needed to be replaced.

The glass tubes were kept in a dark cabinet to simulate the dark interior of the sugar cane stalk. Records were kept during the daily observations.

After the second or third molt, the cane leaves were discontinued as food and 2½-inch pieces of cane stalk, cut from the part above the growing point, were used instead. This food was replaced as often as necessary as shown above.

Following the third or fourth molt, (larvae about 1 centimeter long), the growing stalk was exchanged for solid pieces of cane stalk about 2 inches long. This food was used until pupation of the larvae. It was also necessary to change this for new pieces to prevent the development of fungi.

Corn stalks were occasionally substituted for cane stalks as food. The larvae apparently developed as rapidly on the corn as they did on the cane stalks. Usually in warm weather the corn did not develop fungi as rapidly as did sugar cane, particularly if it was dried in the open air before being placed in the tubes.

DATA

The summary of the egg laying record of twenty *Diatraea saccharalis* females at the Everglades Experiment Station, between August 23rd and September 10th, 1941, follows:

Average preoviposition period, five unmated females	3.6 days
Average preoviposition period, eleven mated females	2.3 days
Average length of egg-laying period, all females.....	3.2 days
Average length of life of unmated females (5)	6.0 days
Average length of life of mated females (11)	4.4 days

COMPOSITE SUMMARY OF THE LIFE CYCLE OF THE SUGAR CANE BORER AT BELLE GLADE, FLORIDA, 1941

Generation	First Generation* 3-11-41 to 5-23-41		Second Generation 7-9-41 to 9-4-41		Third Generation 8-19-41 to 10-23-41		Fourth Generation 10-9-41 to 12-26-41	
Stage of Life Cycle	No. indiv.	Av. no. da.	No. indiv.	Av. no. da.	No. indiv.	Av. no. da.	No. indiv.	Av. no. da.
Incubation	653	13.3	925	5.0	800	5.0	1240	6.0
1st Instar	30	5.0	50	3.1	68	2.2	26	7.4
2nd Instar	40	5.7	25	6.2	60	3.0	14	4.0
3rd Instar	20	4.8	14	3.5	52	4.2	24	5.0
4th Instar	19	8.6	17	3.5	49	4.5	26	10.5
5th Instar	25	7.4	18	4.5	45	6.9	17	13.7
6th Instar	4	6.5	17	5.2	26	7.6	9	9.3
7th Instar	1	10.1	17	6.9	12	9.6	6	14.3
8th Instar	—	—	6	8.5	4	10.8	5	12.4
9th Instar	—	—	4	8.8	1	3.0	1	8.0
10th Instar	—	—	2	7.5	—	—	—	—
Prepupal	37	15.3	18	8.4	1	24.0	—	—
Pupal	32	10.2	15	7.1	1	7.0	—	—
Total eggs to adult	861	86.8	1128	78.2	1119	87.8	1368	90.6
Total, eggs thru 5th	—	44.8	—	25.8	—	25.8	—	46.6

* The first adults of first generation emerged 5/12/41 while eggs for 2nd generation were not laid until 7/9/41.

Average number of eggs laid by unmated females	66.6 eggs
Average number of eggs laid by mated females	221.7 eggs
Av. no. eggs in body of unmated females at death	235.8 eggs
Av. no. eggs in body of mated females at death	119.0 eggs

The duration of the incubation period of *D. saccharalis* eggs was studied daily between February 25, 1941 and November 29, 1941. The period of incubation at room temperature, varied from 15 days on March 7th, to 5 days in July and August, and to 11 days on November 8th. The percentage of hatch was recorded also in September, October and November, and averaged around 75 per cent. The writer considers these figures fairly accurate, due to the close daily observations and recording of data.

During the time covered in this study 4 generations of *Diatraea saccharalis* were observed. These 4 generations were consecutive, in fact they over-lapped, with the exception of the first and the second. A lapse of time from May 23rd to July 9th occurred between these generations due to factors that were beyond the writer's control.

The accompanying table is a composite summary of the studies conducted and shows for the 4 generations the duration of the various stages.

CONCLUSIONS

This study as carried on is insufficient evidence on which to base definite conclusions as to how many generations occur or how many molts the larvae of the *D. saccharalis* go through under Florida conditions. However, many important facts have been established which might readily be used as a beginning for further studies of the ecological relations of the pest in this locality. Due to the national emergency of war, there will probably be no further work done here on this particular subject at least until after peace has been established.

A NEW CUBAN PEST OF CITRUS

Cryptocephalus marginicollis Suffr. (Col.) 

The writer has recently received four tiny beetles from Mr. Fred O. Somerford of Catalina de Guinas, Cuba. He makes the following statement concerning the activities of this beetle:

..... "During over thirty years of grove management here where I own a small grove of mostly Valencia oranges, this is

(Continued on Page 18)

ADDITIONAL ANTS RECORDED FROM FLORIDA, WITH DESCRIPTIONS OF TWO NEW SUBSPECIES

By MARION R. SMITH

Bureau of Entomology and Plant Quarantine
Agricultural Research Administration
United States Department of Agriculture

In two previous articles (Fla. Ent. 14: 1-7, 1930 and Fla. Ent. 17: 21-27, 1933) the author has listed 107 forms of ants found to occur in Florida. Recently 10 additional ones have come to his attention, 2 of which are new to science and are therefore described below. It seems desirable to record these new additions and, where possible, to comment on their habits.

108. *Proceratium croceum* (Roger)

Palatka (Wilda S. Ross).

This form nests most commonly in moist, rather well rotted logs and stumps, especially of pine. The colonies are composed of only a few dozen individuals.

109. *Euponera* (*Trachymesopus*) *gilva* (Roger)

Palatka (Wilda S. Ross).

Colonies are small, usually containing from a few dozen to about one hundred individuals. Males and winged females are generally produced in May and June.

110. *Aphaenogaster* (*Attomyrma*) *floridana* M. R. Smith

Archbold Biological Station, 10 miles south of Lake Placid (T. C. Schneirla).

A single worker was collected from the surface of the soil in an open sandy area covered with a thin stand of scrub pine and pine needles. The type locality is Gretna, Fla.

111. *Aphaenogaster* (*Attomyrma*) *texana macrospina* M. R. Smith

Coral Gables (Robt. E. Gregg); Archbold Biological Station, 10 miles south of Lake Placid (T. C. Schneirla).

112. *Pheidole dentigula* M. R. Smith

Wakulla Springs (Wilda S. Ross).

The species nests in the soil and also in well rotted stumps. The author has usually found colonies to occur in wooded areas, especially where the soil contained considerable humus.

113. *Cardiocondyla venustula* Wheeler

Hollywood, Florida (D. E. Read). Apparently this is the only record of the occurrence of this species in the United States.

In Puerto Rico this ant nests in the soil, especially in gravelly places such as sea beaches and creek bottoms.

114. *Solenopsis pergandei* Forel

Archbold Biological Station, 10 miles south of Lake Placid (T. C. Schneirla); U. S. Naval Hospital, Pensacola (R. M. Lhamon and F. F. Bibby).

At the Archbold Biological Station this species was taken on several occasions, once as thief ants nesting on the margin of a colony of the new *Formica* described below; here numerous queens and extensive brood were observed. Another time the ants were collected from small crater nests in sandy loam, in open semiboggy ground, near scrub. A third nest was found in loamy soil beneath a shallow layer of moss where the surface of the moss was covered by a 3-inch layer of pine needles. Within a space 6 inches in diameter there were numerous crater-like openings.

115. *Strumigenys (Cephaloxys) dietrichi* M. R. Smith

Crescent City, collection of Theodore Pergande.

116. *Dorymyrmex pyramicus flavopectus*, new subspecies

WORKER.—Length 2.6 mm.

Head, exclusive of mandibles, approximately one and one-sixth times as long as broad, with convex sides, and such well rounded posterior corners as to give the posterior border an almost rounded appearance. Scape slender, curved, approximately one and two-tenths times length of head. Mandible with 7 teeth; the first, second, and fourth teeth larger than the others. Under surface of head with a psammophore. Thorax slender; in profile, the dorsum of promesonotum forming a long, low, even convexity. Mesopinotal impression weakly developed. Conical elevation approximately one-half basal length of epinotum. Legs long and slender.

Hairs sparse, confined to under surface of head, mandibles, clypeus, frontal carinae, coxae, and dorsal and ventral surfaces of gaster.

Mandibles and clypeus, but especially thorax, yellowish; remainder of body blackish. Legs in some lights not so dark as the head and gaster.

TYPE LOCALITY.—Archbold Biological Station, 10 miles south of Lake Placid, Fla., collected by T. C. Schneirla, August 24, 1943.

HOLOTYPE.—United States National Museum No. 56764.

The holotype and 12 paratypes were collected by Dr. Schneirla from a low, craterlike nest in open sandy loam near a growth of

pinus. The galleries of the nest led through 6 inches of sandy loam into a red sandy layer below. Specimens of this new subspecies were also collected by Dr. Schneirla from a similar nest in a sandy expanse among sparse pines and scrub. An irregular column of workers 3 inches broad was observed traveling from the one-half-inch nest entrance to another crater 3 yards away.

This new subspecies is easily recognized by the slender form of the worker, the distinctive shape of the head, and especially by the striking color markings.

117. *Formica pallidefulva archboldi*, new subspecies

WORKER.—Length 6.5 mm.

Head, exclusive of mandibles, approximately one and one-sixth times as long as broad, with rounded posterior corners, and rounded posterior border. Scape flattened, curved, approximately one and one-sixth times length of head. Frontal carinae subparallel, not widely separated from each other. Clypeus sharply carinate, anterior border entire. Frontal area triangular, distinct. Teeth on mandibles variable in number, usually ranging from 7 to 10. Maxillary palpus 6-segmented. In profile, dorsum of promesonotum not strongly convex, the evenness of the line interrupted by the anterior border of the mesonotum, which protrudes slightly above the posterior border of the mesonotum. Basal surface of epinotum merging into the declivity without forming a definite line of demarcation between the two regions. Petiole convex in front, more flattened behind, with rather blunt, almost rounded, transverse, superior border.

Head and thorax, especially the former, with a delicate sculpturing which, in some lights at least, imparts a subopaque appearance to these regions. Mandibles striate-punctate.

Hairs suberect to erect, sparse on head and thorax, coarse and numerous on gaster. Under surface of head usually with one or more hairs, occasionally without any, superior border of petiole apparently always with a few erect hairs; coxae, trochanters, and especially lower surface of legs with scattered, erect hairs.

Body very dark brown, almost black; gaster, however, darker than either head or thorax.

TYPE LOCALITY.—Archbold Biological Station, 10 miles south of Lake Placid, Fla., collected by T. C. Schneirla, October 7, 1943.

OTHER LOCALITIES.—Florida: Sanford (A. B. Gahan). Georgia: 5 miles south of Brunswick (Wilda S. Ross).

HOLOTYPE.—United States National Museum No. 56765.

Paratypes range from 6-7 mm. in length. The erect hairs on the under surface of the head are absent in about 25 percent of the paratype specimens, but they are constant on the superior border of the petiole in all individuals.

This new subspecies is definitely a variant of *pallidefulva* Latr. The pilosity of the worker is such that this ant might be

confused with *pallidefulva schaufussi incerta* Emery. The worker can be distinguished from that of *incerta*, however, by the peculiar subopaque appearance of its body and very dark, almost black color. Although the worker of *moki* Wheeler also has a subopaque body it can be readily distinguished from that of *archboldi* by the absence of erect hairs on the thorax, on the under surface of the head, and on the petiole, and by the bronzy luster given off in certain lights by the gaster and posterior portion of the head. Moreover, *F. moki* is known to occur only in the Western States.

A nest of the new subspecies was found beneath a clump of grass, where it was concentrated in sandy loam and rootlets, 7 inches above the waterline and over a space not more than 1 foot in diameter. The general nesting site was in an open sandy area surrounded by palmettos and bushes but near the edge of a swamp. The colony contained about 1,000 workers, 400 individuals in the brood, and a queen. On several occasions Dr. Schneirla collected foraging workers from low-growing bushes in sandy areas.

This subspecies is named in honor of Richard Archbold, the owner of the Archbold Biological Station, who not only encouraged Dr. Schneirla in a study of the ants of the station but who showed a special interest in the habits of this particular ant.

THE MOURNING CLOAK BUTTERFLY IN FLORIDA

In 1917, the writer published in the Florida Buggist, Volume I, Number 1, a notice of the discovery on February 25th, of a mourning cloak butterfly, *Aglaia antiopa*. None have been seen since until February of this year when one was taken. This first observation, made about a mile west of the campus of the University, was the farthest south the insect had ever been recorded. This year's, on February 9th, was made on the shores of Newnan's lake about three miles east and a mile south of Gainesville, so this becomes the "furthest south" of any record of this butterfly in Florida. The only other record from Florida is St. Augustine, where, according to the record of Grossbeck's "Lepidoptera of Florida" it is rare. The caterpillar feeds in willows and elms. There are two broods in the northern states — how many in Florida we do not know, but it may be of some significance that the only two records we have have both been in February.

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A NEW CUBAN PEST OF CITRUS

(Continued from Page 13)

the only insect that eats the tiny little oranges in any quantity, and their ravages are fierce and very costly to the grower, and especially to late bloom, the only fruit getting a chance to live and grow thru is that from the very early bloom, say January, before this insect gets active enough to do any damage; and the real damage is not the wounded, or scarred fruit that lives and develops, it is the thousands and tens of thousands that are so badly eaten they fall off, and in some instances this damage will run as high as 25% of all tiny fruit; they work mostly at night and are hard to find, however, late of evenings, especially if it has rained, they can be found, almost always busy eating on the tiny fruit, but never on leaves and I really believe they can eat their weight in fruit every 24 hours. It is not the unsightly fruit, scarred and wounded that hurts the grower—it is the thousands and tens of thousands that are eaten so badly that they fall off and are lost.”

Never having seen this beetle before, the writer sent it to the Bureau of Entomology and Plant Quarantine in Washington, where it was identified by Mr. H. S. Barber as *Cryptcephalus marginicollis* Suffr.

Mr. Muesebeck makes the following statement about the distribution and habits of this insect, as far as known: “This appears to be very common in Cuba, but we have no previous record of injury to oranges. Since material in our collection is marked as having been taken from a variety of different plants, we should assume that the species is a rather general feeder. The larval habits of the group of Chrysomelidae to which this form belongs are obscure. However, the meager records available indicate that the species are probably all case-bearers and that the larvae feed on dead vegetable material on the surface of the soil.

All the specimens in our collection are from Cuba, except one taken by Dr. Schwarz in 1879 at Nassau, in the Bahamas.”

Mr. Somerford enclosed some of the young fruit with the beetles and there was no doubt about their having been severely chewed by the beetles. He also enclosed the rind of an orange which was badly scarred, as he says, also, by this beetle.

The beetle is a tiny thing, only about 3/16 of an inch in length. The ground color of the thorax and the elatra is a brownish yellow with dark brown or heavy black markings.

J. R. WATSON

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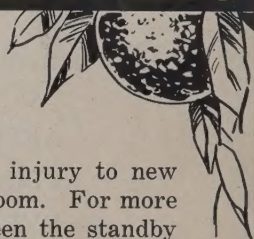
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